

## CLAIMS

What is claimed is:

1. A method of detecting printhead rotation in an inkjet printer, comprising:  
receiving an initial image of a pattern taken from a medium as the printhead passes over a medium;  
receiving a subsequent image of the pattern taken from the medium as the printhead continues to pass over the medium;  
comparing the initial image of the pattern and the subsequent image of the pattern taken from the medium; and  
identifying a rotation of the printhead in the inkjet printer passing over the medium if the comparison indicates the initial image of the pattern is rotated relative to the subsequent image of the pattern.
2. The method of claim 1 further comprising:  
modifying the timing settings associated with the firing of the nozzles in the inkjet printhead to compensate for the rotation of the printhead.
3. The method of claim 1 further comprising:  
redirecting data being printed to different nozzles to effectively compensating for printhead rotation.
4. The method of claim 2 further comprising:  
printing on the medium using the modified timing settings for the inkjets in the printhead.

5. The method of claim 1 wherein printhead rotation detection is performed at one or more time intervals as the printhead passes over the medium.
6. The method of claim 1 wherein the printhead rotation occurs around a z-axis substantially perpendicular to a carriage direction.
7. The method of claim 1 wherein the medium is selected from a set of mediums including: a rolled medium, a cut-sheet medium, a paper medium, a transparent medium, a plastic medium, a textile medium, a cloth medium, and a metallic medium.
8. The method of claim 1 wherein the inkjet printhead is selected from a set including: thermal inkjet and piezoelectric inkjet.
9. The method of claim 1 wherein the initial image of the pattern on the media is received at a first time instant from a photosensor array operatively coupled to the printhead and the subsequent image of the pattern is gathered at a second time instant from the same photosensor array operatively coupled to the printhead.
10. The method of claim 9 wherein the photosensor does not completely pass over the pattern in the time interval between the first time instant and the second time instant.
11. The method of claim 1 wherein the initial image of the pattern is received at a first time instant from a first photosensor array operatively coupled to the printhead and the subsequent image of the pattern is gathered at a second time instant from a second photosensor also operatively coupled to the printhead, wherein the first photosensor array and second photosensor array are physically separated by a predetermined gap distance and the carriage travels at a known carriage-velocity.

12. The method of claim 10 wherein the difference between the second time instant and the first time instant is proportional to the predetermined gap distance divided by the carriage-velocity.

13. An inkjet printer capable of detecting printhead rotation, comprising:  
a carriage guided by at least one carriage guidebar carrying at least one printhead and advanced by a carriage drive motor;

at least one photosensor coupled to the carriage that receives an initial image of a pattern taken from a medium as the printhead passes over a medium and a subsequent image of the pattern taken from the medium as the printhead continues to pass over the medium;  
and

a printer controller configured to compare the initial image of the pattern and the subsequent image of the pattern taken from the medium and identify a rotation of the printhead in the inkjet printer passing over the medium if the comparison indicates the initial image of the pattern is rotated relative to the subsequent image of the pattern.

14. The inkjet printer of claim 13 wherein the printer controller is further configured to modify the timing settings associated with the firing of the nozzles in the inkjet printhead to compensate for the rotation of the printhead.

15. The inkjet printer of claim 13 wherein the printer controller is further configured to redirect data being printed to different nozzles to effectively compensate for printhead rotation.

16. The inkjet printer of claim 14 wherein the printer controller is further

configured to print on the medium using the modified timing settings for the inkjets in the printhead.

17. The inkjet printer of claim 13 wherein the printer controller detects the printhead rotation at one or more time intervals as the printhead passes over the medium.

18. The inkjet printer of claim 13 wherein the printhead rotation occurs around a z-axis substantially perpendicular to a carriage direction.

19. The inkjet printer of claim 13 wherein the medium is selected from a set of mediums including: a rolled medium, a cut-sheet medium, a paper medium, a transparent medium, a plastic medium, a textile medium, a cloth medium, and a metallic medium.

20. The inkjet printer of claim 13 wherein the inkjet printhead is selected from a set including: thermal inkjet and piezoelectric inkjet.

21. The inkjet printer of claim 13 wherein the at least one photosensor coupled to the carriage is limited to a single photosensor that receives an initial image of the pattern on the media at a first time instant and then receives a subsequent image of the pattern gathered at a second time instant.

22. The inkjet printer of claim 13 wherein the at least one photosensor coupled to the carriage is limited to a first photosensor array operatively coupled to the printhead that receives a pattern at a first time instant and a second photosensor also operatively coupled to the printhead that gathers the subsequent image of the pattern at a second time instant from, wherein the first photosensor array and second photosensor array are physically separated by a predetermined gap distance and the carriage travels at a known carriage-velocity.

23. The inkjet printer of claim 13 operatively coupled over a network and available for printing by one or more computer systems.

24. A computer program product for detecting printhead rotation in an inkjet printer, tangibly stored on a computer-readable medium, comprising instructions operable to cause a programmable processor to:

receive an initial image of a pattern taken from a medium as the printhead passes over a medium;

receive a subsequent image of the pattern taken from the medium as the printhead continues to pass over the medium;

compare the initial image of the pattern and the subsequent image of the pattern taken from the medium; and

identify a rotation of the printhead in the inkjet printer passing over the medium if the comparison indicates the initial image of the pattern is rotated relative to the subsequent image of the pattern.

25. The computer program product of claim 23 further comprising instructions operable to cause a programmable processor to:

modify the timing settings associated with the firing of the nozzles in the inkjet printhead to compensate for the rotation of the printhead.

26. The computer program product of claim 23 further comprising instructions operable to cause a programmable processor to:

redirect data being printed to different nozzles to effectively compensating for printhead rotation.

27. The computer program product of claim 23 wherein the medium is selected from a set of mediums including: a rolled medium, a cut-sheet medium, a paper medium, a transparent medium, a plastic medium, a textile medium, a cloth medium, and a metallic medium.

28. The computer program product of claim 23 wherein the inkjet printhead is selected from a set including: thermal inkjet and piezoelectric inkjet.

29. An apparatus for detecting printhead rotation in an inkjet printer, comprising:  
means for receiving an initial image of a pattern taken from a medium as the printhead passes over a medium;

means for receiving a subsequent image of the pattern taken from the medium as the printhead continues to pass over the medium;

means for comparing the initial image of the pattern and the subsequent image of the pattern taken from the medium; and

identifying a rotation of the printhead in the inkjet printer passing over the medium if the comparison indicates the initial image of the pattern is rotated relative to the subsequent image of the pattern.

30. The apparatus of claim 28 further comprising:

means for modifying the timing settings associated with the firing of the nozzles in the inkjet printhead to compensate for the rotation of the printhead.

31. The apparatus of claim 28 further comprising:

means for redirecting data being printed to different nozzles to effectively compensate for printhead rotation.